DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES Office of Structural Materials Quality Assurance and Source Inspection

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Contract #: 04-0120F4

Cty: SF/ALA Rte: 80 PM: 13.2/13.9

File #: 1.28

WELDING INSPECTION REPORT

Resident Engineer: Siegenthaler, Peter **Report No:** WIR-019474 Address: 333 Burma Road **Date Inspected:** 24-Jan-2011

City: Oakland, CA 94607

OSM Arrival Time: 1000 **Project Name:** SAS Superstructure Prime Contractor: American Bridge/Fluor Enterprises, a JV **OSM Departure Time:** 1830 Contractor: American Bridge/Fluor Enterprises, a JV **Location:** Job Site

CWI Name: William Sherwood and Gary Ersh@WI Present: Yes No

Inspected CWI report: Yes N/A **Rod Oven in Use:** Yes No No N/A N/A **Electrode to specification:** Yes No Weld Procedures Followed: Yes No N/A N/A **Qualified Welders:** Yes No **Verified Joint Fit-up:** Yes No N/A N/A Yes N/A **Approved Drawings:** Yes No **Approved WPS:** No **Delayed / Cancelled:** Yes No N/A

34-0006 **Bridge No: Component:** Orthotropic Box Girder

Summary of Items Observed:

Caltrans Office of Structural Material (OSM) Quality Assurance Inspector (QAI) Joselito Lizardo was present at the Self Anchored Suspension (SAS) job site as requested to perform observations on the welding of components for the San Francisco Oakland Bay Bridge (SFOBB) Project.

At OBG 1W-PP10.5-W5-LS-W longitudinal stiffener inside, QA randomly observed ABF welder Hua Qiang Hwang perform 3G (vertical) Shielded Metal Arc Welding (SMAW) complete joint penetration (CJP) welding fill pass to cover pass on the stiffener splice butt joint. The stiffener plates being welded are made of high strength plate material HPS 485W and has a thickness of 30mm. The joint has a double V joint preparation that was welded from one side and after the completion from one side it was back gouged and Non Destructive Testing (NDT) tested using Magnetic Particle Testing (MT) and back welded to the other side. Prior welding, the fit up was inspected and accepted by ABF QC Gary Ersham. QA Danny Reyes also verified the fit up alignment. The welder was noted using E9018H4R with 1/8" diameter electrode implementing Caltrans approved welding procedure specification (WPS) ABF-WPS-D1.5-1012-3. The joint being welded was root welded using a ceramic backing. The splice joint was preheated to greater than 200 degrees Fahrenheit using Miller Proheat 35 Induction Heating System heater blanket located at the opposite side of the plate prior/during welding. The QA Inspector noted the ABF QC Gary Ersham was on site monitoring the in process preheats and welding parameters. During the shift, QA noted ABF QC was closely monitoring the issuance of E9018H4R electrodes due to its limited exposure time allowed. At the end of the shift, cover pass welding on both sides of the joint was completed.

At OBG 9W/10W edge plate 'B' outside, QA randomly observed ABF/JV qualified welder Jorge Lopez perform root pass welding on the CJP splice butt joint. The welder was observed manually welding in the 3G (vertical)

WELDING INSPECTION REPORT

(Continued Page 2 of 3)

position utilizing a SMAW with 1/8" diameter E7018H4R electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1040B. The joint being welded has a single V-groove butt joint with copper backing bar. Prior welding, QA has noted ABF QC William Sherwood verifying the fit up alignment of the joint. According to QC, the alignment mismatch measured was 2.0mm or less. QA performed random verification on the mismatch measurement and came up same results. During welding, ABF Quality Control (QC) William Sherwood was noted monitoring the welding parameters of the welder. QA randomly monitored the welding parameter with reading of 130 amperes which appears in conformance to the contract requirements. At the end of the shift, SMAW root pass welding was still continuing and should remain tomorrow.

At OBG 1W-PP10.5-W2-N deck access hole to top deck plate inside, QA randomly observed ABF/JV qualified welder Jin Pei Wang perform CJP repair welding. The welder was noted welding in 4G (overhead) position utilizing SMAW with 1/8" diameter E7018H4R electrode implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1001 Repairs. The welding repairs were excavated to a boat shape profile and were tested with Magnetic Particle Testing (MT) prior welding. During welding, ABF QC Gary Ersham was noted monitoring the welder and his welding parameters. The locations of the repairs were noted below;

Location Y-dimension Length Width Depth Remarks

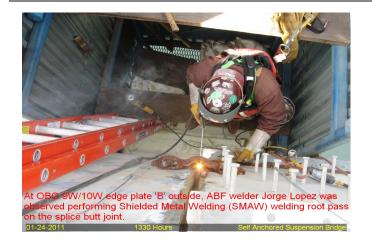
- 70mm 20mm 6mm Excavated 1. 610mm
- 2. 3535mm 120mm 20mm 8mm Completed
- 3. 1940mm 170mm 22mm 9mm Excavated

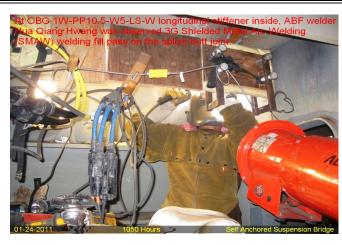
At the request of Quality Control Field Supervisor, Bonifacio Daquinag, QA has randomly verified the QC visual inspection of the CJP welding of the following Lifting Lug Holes (LLH); The QA verification was performed to verify that the welding and the visual weld inspection performed by the QC inspector meet the requirements of the contract documents. At the conclusion of the QA verification it appeared that the welds and the QC inspection complies with the contract documents.

- 1. 1W-PP11-W4 #1 to #4 QA VT/MT verified
- 2. 1W-PP9.5-W4 #1 to #4 OA VT/MT verified
- 3. 2W-PP15-W3 #1 to #3 QA VT/MT verified
- 4. 2W-PP15-W4 #1 to #4 QA VT/MT verified
- 5. 2W-PP17-W3 #3 & #4 OA VT/MT verified
- 6. 2W-PP17-W4 #1 to #4 QA VT/MT verified

WELDING INSPECTION REPORT

(Continued Page 3 of 3)









Summary of Conversations:

No significant conversation ocurred today.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact SMR Sang Le 916-764-5650, who represents the Office of Structural Materials for your project.

Inspected By:	Lizardo, Joselito	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer